

REMARKS

Allowable claims 2-4, 13 and 14 have been rewritten in independent form. Claims 1 and 10-12 are presented for reconsideration without amendment in the light of the following remarks and authorities.

1. Claims 1 and 10-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hioki as a primary reference in view of Yang as a secondary reference. The primary reference is said to disclose in FIG. 1 a superheterodyne receiver for use in a mobile communication system having an automatic frequency controller 20 including an antenna 1 mixers 3 and 4, voltage controlled oscillators 7 and 8, and phase-locked-loop synthesizers 9 and 10. The receiver is said to receive a frequency within a predetermined range of reception frequencies. However, the primary reference lacks the steps of comparing the received frequency to a reference (threshold) frequency and tuning the received frequency within the predetermined range. The secondary reference is said to disclose an automatic frequency control method wherein a frequency value of voltage-controlled oscillator is increased or decreased by comparing with the predetermined reference frequencies. In FIG. 3B a determination is said to be made as to whether the voltage of the VCO is larger than the first predetermined reference voltage, or smaller than the second predetermined reference voltage, the frequency value of the VCO is increased or decreased accordingly to be within the predetermined frequency range. The secondary reference is said to further disclose as shown in FIG. 4, a phase-locked loop 13 maintaining a certain frequency range and comparing the intermediate frequency with the oscillation frequency of the VCO. The frequency control section 14 is said to increase or decrease a frequency value of the VCO based on the comparison result. It is said it would have been obvious for one of ordinary skill in the art to include the method as taught by the secondary reference in the primary reference superheterodyne receiver for stabilizing the received frequency and being within the operational frequency range of the receiver.

This ground of rejection is respectfully traversed.

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

"Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, '[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.'" *In re Laskowski*, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989).

"The claimed invention must be considered as a whole, and the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984).

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so." *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (emphasis in original, footnotes omitted).

"The critical inquiry is whether 'there is something in the prior art as a whole *to suggest* the desirability, and thus the obviousness, of making the combination. [citing *Lindemann* with emphasis added.]" *Fromson v. Advance Offset Plate, Inc.*, 225 U.S.P.Q. 26, 31 (Fed. Cir. 1985).

As the Federal Circuit Court of Appeals said in *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999):

Close adherence to this methodology is especially important of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.'

And in *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000), the Court said:

[I]dentification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *See id.* [*Dembiczak*]. Rather, to establish obviousness based on a combination of the

elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *See In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2d 1635, 1637 (Fed. Cir. 1998), *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. *See B. F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 U.S.P.Q.2d 1314, 1318 (Fed. Cir. 1996).

All the rejected claims call for tuning the oscillator of the receiver to a frequency within the range of reception frequencies. Claim 1 calls for tuning the oscillator to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively. Claims 10-12 call for the frequency controller coupled to the local oscillator and the source of a signal representative of the frequency of a desired signal to be received within the predetermined frequency range for providing a frequency control signal to the local oscillator that always sets the frequency of the local oscillator to a frequency that differs from the frequency of the desired signal by the intermediate frequency and is within the predetermined frequency range. The references do not disclose tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively, or controlling the local oscillator frequency that differs from the frequency of the desired signal by the intermediate frequency and is within the predetermined frequency range to be received. Accordingly, withdrawal of the rejection of claims 1 and 10-12 as unpatentable over the primary and secondary references is respectfully requested. If this ground of rejection is repeated, the Examiner is respectfully requested to quote verbatim the language in the references regarded as corresponding to each element in the rejected claims and quote verbatim the language in the references regarded as suggesting the desirability of combining what is there disclosed to meet the terms of the claims being rejected.

2. The allowability in substance of claims 2-9 and 13-15 is noted. Claims 2-4, 13 and 14 have been rewritten in independent form.

3. The references cited, but not applied, have been examined and are submitted to be incapable of anticipating, suggesting, or making obvious the subject matter as a whole of the invention disclosed and claimed in this application.

In view of the foregoing authorities, remarks, amendments and the inability of the prior art, alone or in combination, to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, all the claims are submitted to be in a condition for allowance, and notice thereof is respectfully requested. Should the Examiner believe the application is not in a condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at (617) 521-7014 to discuss what additional steps the Examiner believes are necessary to place the application in a condition for allowance.

Attached is a marked-up version of the changes being made by the current amendment.

Please apply any charges or credits to Deposit Account No. 06-1050, Order No. 02103-349001.

Respectfully submitted,

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Version with markings to show changes made

Please amend claims 2, 3, 8, 9, 13 and 14 as shown below:

CLAIMS

2. (Amended) [The method of claim 1] A method of tuning an oscillator of a receiver, comprising:

receiving an electromagnetic signal having a frequency within a predetermined range of reception frequencies;

comparing the frequency of the desired received signal to a threshold frequency;

tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively,

further comprising converting the desired received signal frequency to an index value of a set of index values, the set of index values corresponding to a set of channels in said predetermined range of reception frequencies.

3. (Amended) [The method of claim 1] A method of tuning an oscillator of a receiver, comprising:

receiving an electromagnetic signal having a frequency within a predetermined range of reception frequencies;

comparing the frequency of the desired received signal to a threshold frequency;

tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively,

further comprising representing the threshold frequency as an index value of a set of index values, the set of index values uniquely corresponding to a set of channels in said predetermined range of reception frequencies.

8. (Amended) [The method of claim 1] A method of tuning an oscillator of a receiver, comprising:

receiving an electromagnetic signal having a frequency within a predetermined range of reception frequencies;

comparing the frequency of the desired received signal to a threshold frequency;

tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively,

wherein the range of frequencies is bounded by high and low frequencies F_{HIGH} and F_{LOW} , respectively, the threshold frequency approximately equalling $F_{LOW} + (F_{HIGH} - F_{LOW})/2$.

9. (Amended) [The method of claim 1] A method of tuning an oscillator of a receiver, comprising:

receiving an electromagnetic signal having a frequency within a predetermined range of reception frequencies;

comparing the frequency of the desired received signal to a threshold frequency;

tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received frequency when the received frequency is above and below the threshold frequency, respectively,

wherein the range of frequencies is 2400 MHz to 2485 MHz inclusive.

13. (Amended) [The receiver of claim 11] A receiver, comprising:

a signal path for conducting a received electrical signal of reception frequency within a predetermined range of frequencies;

and a frequency controller coupled to said local oscillator and said source for providing a frequency control signal to said local oscillator that always sets the frequency of said local oscillator to a frequency that differs from that of a received signal within said predetermined frequency range by said intermediate frequency and is within said predetermined frequency range.

a local oscillator, for providing a local oscillator signal;

a mixer coupled to said local oscillator and said signal path for providing an intermediate frequency,

wherein the predetermined frequency range is 2440 MHz to 2485 Mhz inclusive.

14. (Amended) [The receiver of claim 11] A receiver, comprising:

a signal path for conducting a received electrical signal of reception frequency within a predetermined range of frequencies;

and a frequency controller coupled to said local oscillator and said source for providing a frequency control signal to said local oscillator that always sets the frequency of said local oscillator to a frequency that differs from that of a received signal within said predetermined frequency range by said intermediate frequency and is within said predetermined frequency range.

a local oscillator, for providing a local oscillator signal;

a mixer coupled to said local oscillator and said signal path for providing an intermediate frequency,

wherein the frequency controller further comprises a microprocessor.